Major Milestones

- ***2020 Partial Consent Decree for Anaconda Smelter NPL Site Civil Action United States of America v. Atlantic Richfield Company***. Entered and filed January 2021 after consideration of public comment.
- **Partial delisting** (removal from the NPL) of three OUs where cleanup is complete—Beryllium OU9, Flue Dust OU11, and Arbiter OU12 (September 2020).
- **6th Five-Year Review** (Fall 2020).
- ***Record of Decision Amendment Anaconda Regional Water, Waste & Soils Operable Unit*** (June 2020). Finalized after consideration of public comment
- ***Old Works/East Anaconda OU Explanation of Significant Differences*** (June 2020).
- ***Community Soils OU Explanation of Significant Differences*** (June 2020).
- **Funding agreement between Atlantic Richfield and Anaconda-Deer Lodge County** for economic development and implementation of institutional controls (such as the Development Permit System, Community Protective Measures Program, and operation of the Old Works Golf Course). (March 2020).
- ***ATSDR Exposure Investigation of Blood Lead and Urine Arsenic Levels*** (October 17, 2019).

Need More Information?

Technical Assistance Grant Group

- Arrowhead Foundation, P.O. Box 842, Anaconda, Montana, 406-563-538, www.anacondasuperfund.com

U.S. Environmental Protection Agency

- Charlie Coleman, Remedial Project Manager, 406-457-5038, coleman.charles@epa.gov
- Dana Barnicoat, Community Involvement Coordinator, 406-457-5007, barnicoat.dana@epa.gov

Montana Department of Environmental Quality

- Joel Chavez, Project Officer, 406-444-6407, jchavez@mt.gov

Anaconda-Deer Lodge County

- Carl Nyman, Superfund Coordinator, 406-563-7019, cnyman@adlc.us

Community Outreach

Recent

EPA prepared several fact sheets and public notices, all of which are available online (see URL at page bottom). Many of them are also linked in this fact sheet.

Fact sheet topics have covered sampling, healthy home best practices, the Anaconda garden produce study, the supplemental surface water work plans and technical impracticability report.

Notices were placed in the Anaconda Leader and Montana Standard for topics such as public meetings, EPA's proposal to delete several OUs, the latest 5-year review, and the ARWW&S proposed plan and ROD Amendment.

Upcoming

Fact sheets are planned in early 2021 for the following topics:

- Five-year review (scope and results)
- Inspector General slag issues (slag and air sampling, results, new bioavailability data, future uses, and remedial action)

Notices will be placed in the Anaconda Leader, as needed, to announce milestones, significant documents, and upcoming public meetings.

Public meetings will be held, as needed, based on public interest as CoVid allows.

Community Involvement Plan Update

In spring 2021, EPA will be updating the community involvement plan (CIP) that guides how EPA will engage and inform the community on what is happening with the Anaconda Smelter Site.

The update will include phone interviews with interested individuals to best determine what the community wants to know, what information delivery methods work best, and how often information should be provided.

If you are interested in being interviewed for the CIP update, please call or email Dana Barnicoat (see box at left).

EPA United States Environmental Protection Agency

2020 Project Update

ANACONDA SMELTER SUPERFUND SITE

EPA Region 8, Montana Office — February 2021

The **Anaconda Smelter Superfund Site** (the Site) is in the remedial action (cleanup) phase of operations, with a goal of finishing construction activities by December 2025. Under rigorous CoVid-19 health and safety protocols, the U.S. Environmental Protection Agency (EPA) and the Atlantic Richfield Company worked throughout 2020 and made significant progress toward the 2025 goal.

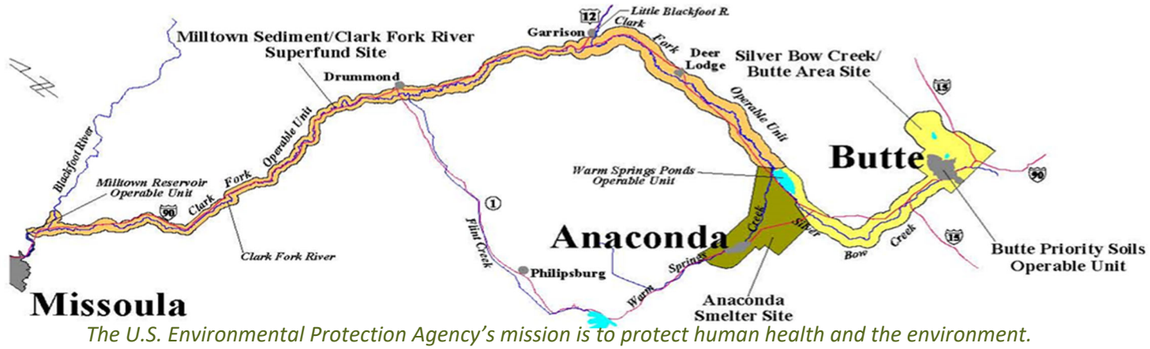
Construction Activities Done by December 2025!!

This fact sheet provides a status update of the work conducted in 2020 and that planned for 2021. Human health highlights that have not yet been included in a status update are highlighted (exposure study, school sampling, slag sampling, and garden study) and the 2020 delisting of three operable units (OUs), major milestones, and outreach are also described.

For more information, please visit the EPA's website or contact one of the individuals on the back page, including the Arrowhead Foundation who is the Technical Assistance Grant awardee for the Site and who maintains a local archive of information. Arrowhead's mission is to "interpret information for the public, make it accessible and ensure that at times of remediation decision the community is informed and involved."

Site Overview

- One of three Superfund sites in the Clark Fork drainage (see map).
- Roughly **300 square miles** of land impacted by smelter emissions and ore-processing wastes.
- Includes Anaconda and Opportunity.
- Copper concentrating and smelting began in 1884.
- Purchased by Atlantic Richfield in 1977. Operations ended in 1980.
- Major features remaining are the 585-foot tall brick smelter stack and the slag pile.
- Human-health and ecological risks from arsenic- and metal-laden wastes.
- Over 260 million cubic yards of mill tailings, furnace slag, and flue dust spread over 20,000 acres of soils.
- Large portions of local aquifers were also polluted.
- Added to EPA's National Priorities List in 1983
- Potentially responsible party, Atlantic Richfield has been actively involved in investigations and cleanup work.
- EPA is lead agency.
- Montana Department of Environmental Quality (DEQ) is support agency.
- Divided into smaller and more manageable OUs, subareas, and remedial design units (RDUs) to make cleanup and long-term management more efficient.



The U.S. Environmental Protection Agency's mission is to protect human health and the environment.

2020 at the Anaconda Regional Water, Waste and Soils Operable Unit (OU 4)

OU4 addresses all remaining contamination and impacts to surface and ground water, waste source areas, and non-residential soils not cleaned up under work in other OUs. Over 200 square miles of land with elevated arsenic and metals. Includes 15 RDUs.

Progress in 2020

Work conducted by Atlantic Richfield under EPA oversight included:

- **RDU 1-Stucky Ridge** (photos 1 and 2). Continued soil treatment and steep slope remediation work (lime amendment, soil pitting, compost spreading, use of best management practices (BMPs) such as check dams, and revegetation.
- **RDU 3-Smelter Hill Uplands**. Removed former railroad bed constructed out of mine waste at the AFFCO facility (photo 3), capped stockpile area, continued in place soil treatment (such as spreading lime amendments) (photo 4), and installed grouted riprapped channels (photo 5).
- **RDU 6-South Opportunity.** Continued in place treatment of soils (photo 6).
- **RDU 9-Fluvial Tailings**. Continued in place treatment of soils and performed long-term maintenance.
- **RDU 10-Warm Springs Creek**. Made streambank repairs (photo 7). Construction has been completed.
- **RDU 14-Smelter Hill Facilities**. Completed leachate treatment system work (photo 8) and installed culverts (photo 9) to finish construction.

Next Steps—2021 and Beyond

- Continue in place soils treatment work described above at RDUs 1, 3, 6, and 9.
- Conduct maintenance (such as streambank repair or repair of revegetated areas not meeting standards) where needed at RDUs 10 and 14.
- Begin work at RDU 2—Lost Creek (north of Lost Creek Road) when RDU 1 work is completed.
- U.S. Geological Survey to continue surface water monitoring to assess whether streams are meeting water quality standards.

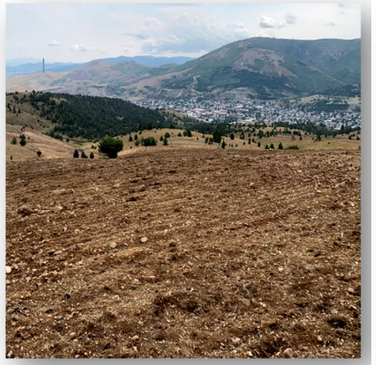
Remedial Design Unit (yet to complete)	Acres	
	Total	Done
1. Stucky Ridge Uplands	2,309	1,037
2. Lost Creek Uplands	825	121
3. Smelter Hill Uplands	1,723	271
6. S. Opportunity Uplands	920	236
9. Silver Bow Creek Fluvial Tailings	2,091	525
12. Slag	197	0
15. Mt Haggin Uplands	853	158
Total	**6,827**	**1,823**

71%

Remedial Action Completed

=

16,235 of 22,805 acres



1. 424 acres treated and reclaimed

2. 1000+ acres have been revegetated on Stucky Ridge

3. Railbed removals at AFFCO

4. Lime treatment at AFFCO

5. New riprap channels (pre-grout)

6. 260 acres of lime treatment

ARWW&S photos courtesy of CDM Smith

7. Streambank repairs

8. Leachate treatment system

9. Installation of culverts

Completed RDUs and Acreage

RDU4-Anaconda Ponds (710), RDU5-Active Railroad/Blue Lagoon (135), RDU7-North Opportunity Uplands (651), RDU8-Opportunity Ponds (4,535), RDU10-Warm Springs Creek (98), RDU14-Smelter Hill Facilities (1,367), West Galen (6,389).

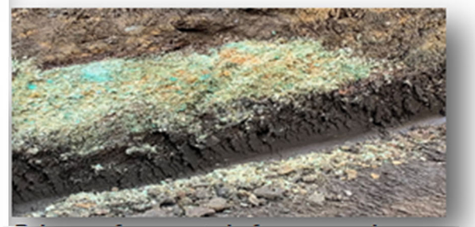
140,000 feet of engineered stormwater controls have been placed. *That's 26.5 miles - slightly longer than a marathon*.

Wetlands

The Dutchman Creek Area is the largest natural wetlands complex in the watershed and the Opportunity Borrow Areas are the largest constructed wetlands **IN THE NATION.** Both have been preserved by Atlantic Richfield with public access for Dutchman Creek.

Revegetation

Revegetation has been so successful that motorists have complained about elk crossing the roads instead of dust from the dry ponds.



Below surface waste before removal (with blue and yellow copper salts)

Excavated or treated soil from OU 4 could fill a line of 10-yard dump trucks stretching from Anaconda to Washington, D.C. and back.

2020 at the Community Soils Operable Unit (OU 16)

OU16 includes residential yards, commercial properties, and abandoned railroads in Anaconda, Opportunity, and rural areas site wide.

Progress in 2020

Work conducted by Atlantic Richfield under EPA oversight included:

- Continued residential and commercial property sampling as specified in the 2020 Community Soils remedial action work plan.
- Continued cleanups of properties that were sampled and met cleanup criteria (250 ppm for arsenic and 400 ppm for lead). Cleanups included replacement of existing contaminated soil with either sod, washed rock, road grade, or garden soils (at the owner's request) (see pictures at right).
- At three HUD properties (Mount Haggin Homes, Pintler Apartments, and PJ Hagan Manor) conducted cleanup of locations sampled in 2018 and 2019 that had arsenic and lead concentrations exceeding one or both action levels for cleanup.

Next Steps—2021 and Beyond

- Atlantic Richfield will continue to try and obtain access agreements from properties not yet sampled.
- Residential and commercial property sampling will continue.
- Cleanup of properties that meet cleanup criteria will continue.
- Begin sampling unpaved alleys and parking lots not previously cleaned up.
- The last call for residential and commercial/industrial soil sampling is August 1, 2024.

Sampling and Remediation Numbers (2012-2020)

Year	Total Properties Sampled	Properties Qualifying for Remediation	Properties Remediated
2012/2013	76	43	—
2015	12	12	—
2016	498	480	40
2017	496	414	318
2018	312	251	325
2019	336	243	338
2020	220	152	207
Total	**1,950**	**1,595**	**1,228**

Test by Request

Property owners who would like to have their yards tested at no cost for arsenic and lead should call or email one of the contacts below:

Anaconda Deer Lodge County

- **Carl Nyman, Superfund Coordinator,** 406-563-7019, cnyman@adlc.us
- **Linda Moodry**, **CPMP Coordinator**, 406-563-7476, lmoodry@waterenvtech.com

Atlantic Richfield Company

- **Luke Pokorny**, **Liability Manager**, 406-723-1832, Luke.Pokorny@bp.com

Soil removal at Cedar Park Homes

The Community Protective Measures Program

The Community Protective Measures Program (CPMP) provides:

- Home inspections to identify sources of contamination
- Renovation kits to reduce contamination from home improvement projects and loans of high-efficiency vacuums to cleanup residual contamination
- Clean soils for existing or proposed vegetable gardens and play areas

Contact the Anaconda-Deer Lodge County, superfund@adlc.us, 406-563-7476

Before, during, and after photos of options for contaminated soils replacement in 2020.

Sod, washed rock, road mix, and garden soil.

Residential photos courtesy of Pioneer Technical Services

A Look Back at 2018 Human Health Studies in Anaconda

Exposure Investigation

In 2018, Agency for Toxic Substances Disease Registry (ATSDR) measured blood lead levels and urine arsenic levels in 367 Anaconda residents. The values in Anaconda were compared to those for the U.S. general population. ATSDR published the results in an exposure investigation report in 2019.

In brief, their four findings were:

1. **Blood lead levels.** Children under 6 and women of child-bearing age are the groups at greatest risk for harmful health effects from lead. In Anaconda, they had **less than 5 micrograms per deciliter** (µg/dL) of blood lead, which is not considered elevated. Children aged 6 to 19 also had less than 5 µg/dL and while some adults had blood lead levels slightly above national norms, they were still less than 5 µg/dL. No follow-up was needed.
2. **Inorganic Arsenic.** Inorganic arsenic is associated with smelter-related contamination and the mean level in Anaconda was **slightly lower** than the mean for the general U.S. A few people had elevated levels but not at concentrations expected to cause health problems.
3. **Total Arsenic.** Total arsenic is the sum of inorganic and organic arsenic. Inorganic is linked with smelter contamination, while organic comes mainly from diet (such as seafood and rice). Total arsenic in Anaconda participants was slightly higher than the U.S. population but is not considered to be a problem.
4. **Job- or Attic-Related Lead and Arsenic.** People who said that they had jobs where lead may be present had increased levels of blood lead. Blood lead and urinary arsenic were also elevated for people who regularly entered their attic.

ATSDR recommended that residents participate in the Community Soils cleanup, that the health department conduct regular blood lead screenings for children under 6, that EPA continue Superfund cleanup, and that people working in jobs where lead and arsenic are present wear appropriate personal protective equipment on the job.

ATSDR's complete report is available online at:
www.atsdr.cdc.gov/HAC/PHA/HCPHA.asp?State=MT

Garden Produce Study

In fall of 2018, EPA conducted a study of garden produce and soil for certain metals and for attributes that may influence soil metal concentrations and/or uptake of these into produce. Participation was open to anyone in the community and 40 properties were included.

Produce Results

The findings for produce were:

1. Risks were within EPA's acceptable risk range of 1 per 1,000,000 to 1 per 10,000 for cancer at all properties.
2. One property had slightly elevated non-cancer risks, due to arsenic.

Soil Results

1. No samples had arsenic concentrations above the soil cleanup level of 250 mg/kg.
2. Four garden soil samples had lead concentrations above the 400 mg/kg cleanup level. Produce from these gardens did not have elevated concentrations relative to the produce consumption levels.

A fact sheet on the garden produce study is available at EPA's website.

Blood Lead Testing and Attic Dust Sampling

In response to ATSDR's recommendations, Anaconda Deer Lodge County offers free blood lead testing all residents. Attic dust sampling is also available at no charge for area residents in homes built before 1980.

For more information, call or email:

Anaconda Deer Lodge County

- **Carl Nyman,** 406-563-7019, cnyman@adlc.us
- **Linda Moodry**, 406-563-7476, lmoodry@waterenvtech.com

Although the vast majority of gardens had concentrations of metals in soils below site cleanup levels, gardeners should wash their hands after working in soil.
Fruits and vegetables should be washed prior to consumption, especially root vegetables. This also reduces exposure to pesticides, fertilizers, and soil pathogens and bacteria present in soils nationwide.
Wash your hands, wipe your feet, and leaving dirty tools and boots outside!

School Sampling

In March and June 2018, EPA sampled all Anaconda schools to determine the concentrations of arsenic and lead in interior dust and the potential for students and school personnel to contact dust at concentrations that exceed residential soil clean up levels. EPA placed and sampled entryway mats at all schools. March and June represented wet and dry conditions. Floor mat sampling was done in September instead of June to ensure conditions were representative of times when students are actively tracking dirt in on their shoes.

Sampling was consistent with how Atlantic Richfield samples residential interiors for dust (high-volume and micro-vacuum samplers). Over 250 samples were collected.

Accessible Areas

Samples were taken from areas accessible to students and staff (classrooms, lunchrooms, entrances, hallways, and gymnasiums) and cleaned regularly by the janitorial staff. Results indicate:

- No exceedances of arsenic or lead cleanup levels in airborne or surface dust. Areas where children spend the most time and have the greatest potential of exposure do not pose a risk and do not appear to contain smelter-related material.
- No exceedances of arsenic or lead cleanup levels in floor mat samples. Smelter-related material is not being tracked into school interiors.

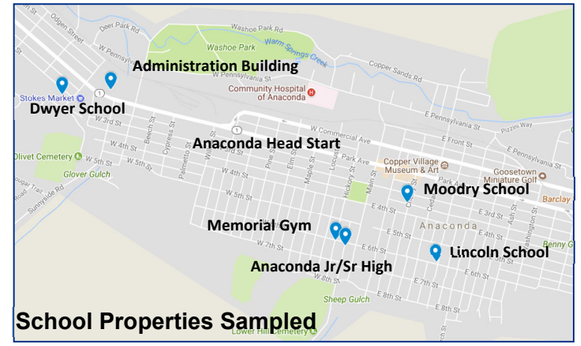
The maintenance staff are doing a great job and are largely responsible for the low levels of dust in the accessible areas of active schools.

Inaccessible Areas

Samples were taken from areas generally inaccessible to students and staff (such as pipe runs, tops of ceiling tiles, and boiler rooms). These areas are rarely, if ever, cleaned and are the most likely to contain smelter-related deposits. As such, they represent the worst case.

The findings were:

- Some exceedances for lead that were generally not related to elevated arsenic. Smelter-related wastes have both lead and arsenic in elevated concentrations.
- Elevated lead is likely from past use of lead-based paint, not uncommon in buildings of this age. Similar results would be expected in schools of the same age across the country.
- Cleanup of the inaccessible attic dust with elevated lead concentrations was completed in 2018 for the active school and 2019 for the inactive school. No additional follow up or sampling is needed.



Best Management Practices for Schools

EPA recommends that best management practices be used by maintenance staff when accessing or working in areas that have large amounts a dust and have been relatively undisturbed for long periods of time.

These practices include removing dust by wiping or vacuuming and ensuring that it is not tracked into accessible areas.

Wash your hands before you eat, before you enter, wipe your feet!

Soil Swap Program

The goal of the CPMP's Soil Swap Program is to assist property owners in creating a protective barrier between human contact and possible contamination.

Homeowners within the **Anaconda Superfund Overlay Area** can obtain replacement soil for two, 4-foot by 8-foot inground or raised garden beds **free of charge** by calling the **CPMP at 406-563-7476**.

Raised beds extend Montana's limited growing season by allowing soil to warm up faster and drain better and by allowing for easy to use covers against frost. Weeds are also easier to manage and there is less bending.